

TOPIC: INTRO TO COLLECTING DATA

Intro to Collecting Data

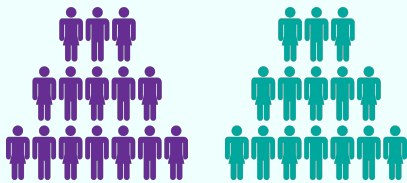
◆ There are 2 main ways to collect data:

- **Experiment:** Apply a _____ (*treatment*) and measure its effects; you _____ assume causation.
- **Observational Study:** Do _____ change anything, just measure characteristics; you _____ assume causation.

EXAMPLE

Identify the data collection method & whether you can assume that effects on one variable are **caused** by the other for each of the following studies:

(A) Testing a medication by giving 15 subjects a **placebo**, & 15 the **actual medication**.



[OBS. STUDY | EXPERIMENT]

CAUSATION [YES | NO]

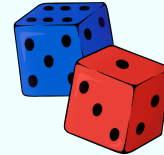
(B) Taking a survey of 30 college students about their sleep habits & grades.



[OBS. STUDY | EXPERIMENT]

CAUSATION [YES | NO]

(C) Rolling a **fair** & a **loaded** die 10 times each & comparing results.



[OBS. STUDY | EXPERIMENT]

CAUSATION [YES | NO]

PRACTICE

A regional store manager wants to test whether increasing store hours increases profits, so they randomly select half of their locations to stay open an extra hour later in the evenings and compare profits between stores at the end of the month. They notice that stores open later saw higher profits on average. Is this an experiment or an observational study? Can they determine the extra hours caused the increase in sales?

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PRACTICE

A store surveys its target demographic and learns that 86% of people would purchase the product they've been heavily advertising. Is this an experiment or an observational study? Can they conclude their current advertising strategy caused the high percentage of interest?

PRACTICE

An office manager wants to determine how employees feel about their personal growth and professional achievement in the last quarter. Should they run an observational study or experiment?

PRACTICE

A software development company created a new app for fitness, and they want to determine if using the app can lead to weight loss and increased strength in customers. Should they run an observational study or experiment?